

REMARKS

Summary of the Office Action

Claims 1-7 and 9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Claims 1-7 and 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hoffman et al. (U.S. Patent 5,873,196) (hereinafter “Hoffman”) in view of Shin et al. (5,459,121) (hereinafter “Shin”).

Summary of the Response to the Office Action

Applicants have amended claim 1 to improve the form of the claim. Accordingly, claims 1-7 and 9 remain pending for consideration.

Rejection under 35 U.S.C. § 112, Second Paragraph

Claims 1-7 and 9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants have amended claim 1 to improve the form of the claim in accordance with the Examiner’s comments at page 2 of the Office Action. Accordingly, Applicants respectfully submit that the claims now fully comply with 35 U.S.C. § 112, second paragraph. Withdrawal of the rejections under 35 U.S.C. § 112, second paragraph is thus respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claims 1-7 and 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hoffman in view of Shin. This rejection is respectfully traversed for at least the following reasons.

Applicants respectfully submit that the disclosure of the instant application relates to a method of efficiently introducing a substance into an inside portion of a plant from outside of the plant. For example, the substance is introduced into the plant from a portion where a conductive tissue of the tip of a branch is exposed. The substance passes through the conductive tissue, and into the inside of the plant. Specifically, the disclosure of the instant application relates to an advantageous and novel way of introducing a substance into the inside of a plant via conductive tissues such as sieve tubes and vessels.

Sieve tubes normally flow from a branch portion of a plant to a stem portion of the plant. Accordingly, a substance can easily be introduced from the tip portion of a branch into a plant via sieve tubes. On the other hand, vessels normally flow in the opposite direction from sieve tubes. In particular, the flow for vessels is normally from a stem portion of a plant to a branch portion of the plant. Accordingly, a substance is not easily introduced from the tip portion of a branch into a plant via vessels. Therefore, in order to enable the introduction of a substance into a plant via vessels, the flow of the vessels must be reversed to the opposite direction so that the flow is “from a branch to a stem.”

The Applicants of the instant application discovered that the prevention of transpiration from leaves reverses the flow of vessels in the branch to the opposite direction. This discovery

provides the advantageous result that a substance can easily be introduced into a plant via vessels by prevention of transpiration from leaves.

Independent claim 1 of the instant application recites a specific method of introducing a substance into plant tissue of a plant having branches whereby the substance is introduced through a branch of the plant into the plant tissue. More particularly, claim 1 goes on to recite that the “substance is absorbed through conductive tissue of the branch while inhibiting means is carried out in order to inhibit transpiration through a leaf on the branch or to inhibit water requirement by the leaf.”

Applicants respectfully submit that Hoffman teaches an implantable device for the release of active substances to plants. Accordingly, Hoffman teaches that this device is implanted into the plant. As a result, it is clear that Hoffman does not teach or suggest, to any extent, the introduction of active substances into the plant via the outside of the plant. Instead, Hoffman teaches circulating active substances inside the plant. As a result, Applicants respectfully submit that the methodology recited in independent claim 1 is completely different from the device disclosed by Hoffman.

In the Office Action, the Examiner asserted that “Hoffman et al. teach that low water potential inhibits the release of active compounds (column 1, lines 25-29)”. Applicants note that while this teaching might suggest that the flow rate depends on water balance, Hoffman does not include any discussion regarding the flow direction of conductive tissues. As a result, Applicants respectfully submit that one having ordinary skill in the art would not be motivated to arrive at the methodology recited in independent claim 1 from the disclosure of Hoffman.

Moreover, Applicants respectfully submit that Shin teaches a method that can reduce plant water loss by closing stomata openings and reducing plant transpiration by chemical means. However, Shin does not teach, or even suggest, the relationship between reducing plant transpiration and the flow direction of conductive tissues. Even further, Shin does not teach, or even suggest, the introduction of a substance into a plant. As a result, Applicants respectfully submit that one having ordinary skill in the art would not be motivated arrive at the methodology recited in independent claim 1 from the disclosure of Shin.

Accordingly, Applicants respectfully assert that the rejections under 35 U.S.C. § 103(a) should be withdrawn because neither Hoffman nor Shin, whether taken singly or combined, teach or suggest each feature of independent claim 1. MPEP § 2143.03 instructs that “[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 409 F.2d 981, 180 USPQ 580 (CCPA 1974).” Furthermore, Applicants respectfully assert that dependent claims 2-9 are allowable at least because of their dependence from claim 1, and the reasons set forth above.

CONCLUSION

In view of the foregoing, Applicants submit that the pending claims are in condition for allowance, and respectfully request reconsideration and timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants undersigned representative to expedite prosecution. A favorable action is awaited.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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